

Before the Federal Communications Commission

IN RE

TECHNOLOGY TRANSITIONS;
POLICIES AND RULES GOVERNING RETIREMENT OF COPPER
LOOPS BY INCUMBENT EXCHANGE CARRIERS;
SPECIAL ACCESS FOR PRICE CAP LOCAL EXCHANGE
CARRIERS; AND
AT&T CORPORATION, PETITION FOR RULEMAKING TO
REFORM REGULATION OF INCUMBENT LOCAL EXCHANGE
CARRIER RATES FOR INTERSTATE SPECIAL ACCESS
SERVICES

ON FURTHER NOTICE OF PROPOSED RULEMAKING

**COMMENTS OF THE
NATIONAL EMERGENCY NUMBER ASSOCIATION**

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GN Docket № 13-5 - WC Docket № 05-25

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The National Emergency Number Association (“NENA”) respectfully submits the following comments in response to the *Further Notice of Proposed Rulemaking* adopted by the Commission on August 6th, 2015.

COMMENTS

In few other respects are communications more central to the preservation of life and protection of property than when they provide the critical link between consumer and

emergency responder. Because of the extraordinary impact that the IP transition will have on consumers and 9-1-1 systems alike, NENA strongly agrees with the Commission's conclusion that the adoption of specific criteria for the evaluation of proposed service discontinuances is warranted. Additionally, NENA is convinced that the added business certainty afforded by such criteria will help to speed the availability and roll-out of Next Generation 9-1-1 ("NG9-1-1") products and services. These comments provide NENA's perspective on core elements that, we believe, should inform the Commission's review of proposed discontinuances.

I. Wireline-equivalent 9-1-1 service must be available to consumers.

The time has long past in which the Commission should tolerate the operation of communications services that do not provide consumers with a wireline-equivalent 9-1-1 experience. Shortcomings of earlier-generation technologies may have justified differences in service quality or the provisioning of automatic information services. But, as demonstrated by the adoption of a "Dispatchable Location" goal in the recent Wireless Location Accuracy proceeding, solutions for even the most vexing technical problems are now available. Consequently, NENA is convinced that the Commission should establish a transition requirement that ensures consumers of future IP-based communications services receive *at least* the same level of 9-1-1 service as consumers on pre-transition analog or Time-Division Multiplexed (TDM) networks. To ensure this level of service, NENA believes the Commission should give particular consideration to four factors identified in the *Further Notice*: 1) Capacity and Reliability, 2) Quality of Service, 3) Interoperability, and 4) Accessibility.

A. Networks or alternative services must provide adequate capacity and reliability for consumers attempting to access 9-1-1 service.

When a consumer picks up a telephone, they should have more than a mere expectation that the underlying service will provide her with access to 9-1-1: she should have a *right*. Fortunately, IP-based networks provide a significantly greater number and variety of tools to fulfill that right. Unlike traditional circuit-switched networks, IP-based networks can employ dynamic, statistical means to ensure access to emergency services, even over congested links. As a result, subscribers should expect to receive no more than a 1-in-100 probability of blocking within a carrier or alternative service provider's network when attempting to place a 9-1-1 call. Likewise, consumers should expect that a carrier or alternative service provider outage will limit his ability to reach 9-1-1 no more than ~5 minutes in any given year (99.999% reliability). These two metrics, long fundamental to telephone network engineering (and often greatly exceeded) set the foundation for access to emergency services through 9-1-1, and should form part of any transition criteria adopted by the Commission. Importantly, these metrics could apply regardless of whether the underlying service is voice, text, video, or something else entirely. Consequently, NENA urges the Commission to retain these or similar metrics in its final transition principles.

B. Voice services should provide at least toll-quality service for 9-1-1 calls.

Completing a call, of course, is just the beginning: once a voice link is established with 9-1-1, it is equally important that a consumer be able to communicate clearly with the telecommunicator at the other end. Historically, wireline networks were characterized by their ability to provide excellent speech intelligibility, even over long transmission distances. Though subjective, this characteristic has come to be described as providing "toll-quality" voice service. To quantify "toll-quality" voice, many sources use a value

known as “Mean Opinion Score” or simply “MOS.” MOS ranges from 1 (“Bad”) to 5 (“Excellent”), and describes the intelligibility of speech sent through a transmission system. The technical details of MOS are beyond the scope of these comments, but one metric stands out clearly: For regular TDM voice service, a MOS score of 4 or better is routinely achieved.

NENA believes that this quality of service should serve as a general minimum guideline for determining whether an alternative service is available. We note, however, that the Commission should exercise caution in establishing a hard-and-fast criterion. As noted above, IP-based networks and services can employ dynamic, statistical means to ensure call completion or continuation. In some circumstances, the use of these techniques could allow a call to continue with intelligible, if imperfect, voice quality. NENA believes that this is preferable to an outright call failure, given the high stakes of many 9-1-1 calls. Consequently, we believe the Commission should focus on a MOS goal, not a hard-and-fast minimum. Otherwise, communications service providers might have a perverse incentive to drop a call, rather than dynamically adjusting its bit-rate.

C. The IP transition should enable modern accessibility services like RTT.

Emergencies arise for *all* consumers, and emergency services must therefore be available to everyone on a reasonably-accessible basis. This necessarily requires that any service offered by a carrier or alternative provider meet the needs of consumers with disabilities. Legacy networks meet this obligation by providing access to legacy technologies like TTY and Telecommunications Relay Service. To make the IP-transition beneficial, it must not simply replicate the services of legacy networks, complete with all their flaws.

In post-transition IP-based consumer networks, legacy technologies should be deprecated. Ideally, NENA would prefer to see the Commission adopt strong requirements

for the availability of modern accessibility technologies such as Real-Time Text (“RTT”) and multi-party video calling. Of course, not every carrier or service should be obligated to provide every possible means of communicating over a network. But, in considering whether services are available for consumers, the Commission should look at a broad set of NG9-1-1 compatible technologies to make a full-some evaluation of whether, taken together, the available alternative *services* render a given *network* accessible for all consumers.

II. Specialized 9-1-1 services must be available to 9-1-1 authorities and Public Safety Answering Points.

Beyond the basic requirements for consumer 9-1-1 service, carriers and/or service providers of the future must still provision 9-1-1 capabilities for local government entities charged with operating that service for the public. To ensure the continued availability of a robust emergency response capability through 9-1-1, NENA believes the Commission should focus on three specific areas: 1) capacity and reliability, 2) interoperability, and 3) cybersecurity.

A. Carriers or alternative service providers should make available appropriately-dimensioned and highly-reliable 9-1-1 core services.

In many important ways, “9-1-1 service” is different as provisioned for Public Safety Answering Points and 9-1-1 Authorities than it is as provisioned to consumers. Core services for 9-1-1 include selective (location-based) routing, automatic number identification, automatic location identification, specialized trunking and signaling arrangements, and higher-than-normal link engineering and maintenance requirements. For many PSAPs and 9-1-1 Authorities already well into their own transitions to IP-based service, the transition of local exchange service away from TDM-based systems will come as a welcome relief, finally enabling advanced capabilities that presently lay

dormant. Without some vigilance on the part of the Commission, however, the transition could, for others, become a nightmare. Already, NENA has been warned of some state-level IP transition proposals that omit critical protections for specialized 9-1-1 service. Without a requirement for the availability of alternative sources for selective routing (or equivalent NG9-1-1 functionality), for example, PSAPs could find themselves unable to procure a key service in the 9-1-1 system operational chain. Likewise, the availability of ANI and ALI capabilities is crucial for legacy PSAPs, and must somehow be maintained. These key services require thoughtful engineering to ensure that they operate on a 24x7x365 basis, and the Commission should ensure that *credible* alternative providers of these services exist before approving a discontinuance notice that applies to these services in areas where they are currently provided by a legacy carrier.

B. Carrier network offerings must meet basic interoperability requirements to ensure the availability of 9-1-1 service through alternative service providers.

Unlike most consumer services, some core E9-1-1 functions do not have precise analogs in an NG9-1-1 environment. As access networks and origination services become decoupled, then, it will be necessary for the Commission to ensure that alternative providers of origination services are capable of providing or accessing the functional entities and network services necessary to provision NG9-1-1 service to their customers. For many years, NENA has anticipated this need: Our i3 standard for NG9-1-1 explicitly provides for open, standards-compliant interfaces and data structures to enable interoperation of disaggregated access networks and originating services. But having a standard is not enough. To ensure that disaggregated originating services can be reasonable alternatives to access-network-provider-bundled originating services, NENA is convinced that the Commission must, at a minimum, require access

network providers to make available at least some standards-compliant functional entities and interfaces.

In the location context, access networks have the best, closest access to consumer location data. Wireline access network providers, for example, have an address, corroborated by their network deployment and service order entry processes, at which a communications link is terminated. Likewise, wireless access network providers must make available a Dispatchable Location or geodetic coordinates of a fixed or mobile subscriber unit. However it is determined, this data is crucial to the accurate and efficient routing of 9-1-1 calls and the ultimate determination of the caller's location.

In order for alternative service providers to provision NG9-1-1-capable voice, text, or other services, then, it follows that they must have ready access to these data using standards-based mechanisms. The i3 standard specifies globally-standardized (i.e., IETF standards-track) mechanisms for these functions. The standard assumes that access network providers will make available Location Information Servers ("LISs") accessible to authenticated services using standardized interfaces and data structures. While NENA understands that some carriers may choose to provision internally-facing services differently, we firmly believe that all access network providers must expose the minimum set of outward-facing NG9-1-1 services available to enable 9-1-1 service provisioning by alternative service providers. Otherwise, either the competitive market for alternative originating services envisioned by the Commission will never come to fruition, or users of alternative originating services will face permanently lower-quality 9-1-1 service than customers of originating services bundled with access network service.

C. Carrier networks and alternative services must provide adequate assurances of consumer privacy and security during 9-1-1 sessions.

The contents of a 9-1-1 call, during its pendency, can be among the most intimate and sensitive of personal details.

Tragedy, loss, fear, and, yes, death itself are, too frequently, the subject of these calls for help. To protect these communications, NENA's standards for NG9-1-1 include a robust suite of mechanisms designed to ensure the authenticity, security, and privacy of 9-1-1 calls. As the closed, hierarchical networks of the TDM world give way to open and flat IP networks, new attack surfaces and vulnerabilities will be exposed to the world. And although it would be tempting to assume that the importance of these calls will provide them a measure of protection from all but the most hardened of criminals, we must not do so. Consumers *must* know that they will not be compromised by reaching out for help, yet we know already that pranksters, state actors, non-state organizations, and the merely curious will attempt to lift the veil on 9-1-1. To guard against intrusions of the worst sort, NENA encourages the Commission to give special attention to the information security factors it will examine in considering any proposed discontinuance, particularly where that notice affects 9-1-1 service.

CONCLUSION

The Commission should adopt discontinuance review criteria consistent with the *Further Notice* and these comments.

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